Amendments to the Claims:

Claims 1 – 57. **(Canceled)**

58. **(Currently Amended)** A method for encoding data for transmission over a telecommunications network comprising embedding a control data block within a plurality of real data blocks; **modulating or transforming the control data block through phase angle convoluting each real data entry of each real data block with phase angles of the corresponding entries of the other real data blocks** ~~convoluting real data in each real data~~ **and embedding the convoluted real data entries into the control data** block ~~with at least some of the control data in the control data blocks~~; modulating or transforming the ~~convoluted real data in~~ **plurality of real data blocks through modifying** the **plurality of** real data blocks with **at least some of the convoluted real data entries placed into the control data block** ~~one or more sub-carrier signals~~; and modulating or transforming data in **the plurality of real data blocks and** the control data block with every sub-carrier that is used to modulate the real data **entries**, wherein each entry of the control data block has a phase angle that is a function of the phase angles of the corresponding entries of the real data blocks **and the phase angle convoluting comprises subtracting from the phase angle of each real data entry all of the phase angles of all of the corresponding entries of all of the other real data blocks**.

59. **(Previously Presented)** A method as claimed in claim 58, wherein each of the control and real data blocks has *m* entries, where *m* is an integer of one or more, and *m* sub-carrier transmission channels are provided, and each control data entry and each real data entry are modulated with the corresponding sub-carrier.

60. – 61. **(Canceled)**

62. **(Currently Amended)** A method as claimed in claim **58** **[[61]]**, wherein the convoluted encoded data blocks can be represented by: $X_{nm} =$ **A_{nm0}exp** ~~A_{nm0}exp~~$(j(\phi_{nm0} + \phi_{km0})$, where **$A_{nm0}$exp (j($\phi_{nm0}$))** ~~$X_{nm0}$~~ is the original encoded quadrature signal in data block n for sub-carrier m**, where A_{nm0} is the amplitude of the encoded quadrature signal in data block n for subcarrier m**; ϕ_{nm0} is the original phase angle for data block n and sub-carrier m; and ϕ_{km0} is the original phase angle for **an inserted** ~~the~~ control data block **k,** and sub-carrier m.

63. **(Previously Presented)** A method as claimed in claim 58, wherein each phase angle for the control data in the control data block is randomly assigned.

64. **(Canceled)**

65. **(Previously Presented)** A method as claimed in claim 58, wherein the phase angle of each entry of the control data block is the sum of the phase angles of the corresponding entries of real data blocks.

66. – 67. **(Canceled)**

68. **(Currently Amended)** A method as claimed in claim **58** **[[67]]**, wherein the encoding of an N block data transmission can be represented as follows:

$$X_{1m0} = I^{c}_{1m0} + jQ^{c}_{1m0} = A_{1m0}\exp\left(j\left(\alpha_{1m}\phi_{1m0} - \alpha_{2m}\phi_{2m0} - \alpha_{3m}\phi_{3m0} - \quad \ldots \quad - \alpha_{Nm}\phi_{Nm0}\right)\right)$$

$$X_{2m0} = I^{c}_{2m0} + jQ^{c}_{2m0} = A_{2m0}\exp\left(j\left(\alpha_{2m}\phi_{2m0} - \alpha_{1m}\phi_{1m0} - \alpha_{3m}\phi_{3m0} - \quad \ldots \quad - \alpha_{Nm}\phi_{Nm0}\right)\right)$$

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$$X_{km0} = I^{c}_{km0} + jQ^{c}_{km0} = A_{km0}\exp\left(-j\left(\alpha_{1m}\phi_{1m0} + \alpha_{2m}\phi_{2m0} + \alpha_{3m}\phi_{3m0} + \quad \ldots \quad + \alpha_{Nm}\phi_{Nm0}\right)\right)$$

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$$X_{Nm0} = I^{c}_{Nm0} + jQ^{c}_{Nm0} = A_{Nm0} \exp\left(j\left(\alpha_{Nm}\phi_{Nm0} - \alpha_{1m}\phi_{1m0} - \alpha_{2m}\phi_{2m0} - \quad \ldots \quad - \alpha_{(N-1)m}\phi_{(N-1)m0}\right)\right)$$

where, for $n = 1, 2 \ldots N$, X_{nm0} represents the new encoded signal in data block n for subcarrier m; I^C_{nm0} and Q^C_{nm0} represent the in-phase and quadrature components of the convoluted signal; A_{nm0} is the amplitude of the original signal in data block n for subcarrier *m*; □$_{nm0}$ is the phase angle of the original data within in data block *n*, for subcarrier *m*; X_{km0} represents the control data signal in the control data block *k* for subcarrier *m*; I^C_{km0} and Q^C_{km0} represent the in-phase and quadrature components of the signal in the control block *k*, for subcarrier *m*; A_{km0} is the amplitude of the signal in control block *k* for subcarrier *m*; and where the terms α_{nm} *(n = 1, 2 ...N)* are constants associated with the convolution of each ~~encoded~~ phase angle **of the original data within the *N* data blocks on** the sub-carrier ***m***.

69. **(Previously Presented)** A method as claimed in claim 58, wherein the step of modulating comprises frequency modulating the signal.

70. **(Previously Presented)** A method as claimed in claim 58, comprising receiving data for transmission to a receiver, dividing the data into *N-1* data blocks and embedding a the control data block into the *N-1* data blocks to provide a *N* block data transmission.

71. **(Currently Amended)** A method as claimed in claim 58, wherein the control data block is embedded substantially in the middle of the **plurality of** real data blocks.

72. **(Currently Amended)** A method as claimed in claim 58, wherein a plurality of control data blocks are embedded within the **plurality of** real data blocks.

73. **(Canceled)**

74. **(Currently Amended)** A computer program, ~~preferably~~ on a non-transitory computer readable medium, having code or instructions**, that when executed by a processor, are configured to:** ~~for carrying out the method of claim 58.~~

embed a control data block within a plurality of real data blocks;

modulate or transform or form the control data block through phase angle convoluting each real data entry of each real data block with phase angles of the corresponding entries of the other real data and embedding the convoluted real data entries into the control data block;

modulate or transform the plurality of real data blocks through modifying the plurality of real data blocks with at least some of the convoluted real data entries placed into the control data block; and

modulate or transform data in the plurality of real data blocks and the control data block with every sub-carrier that is used to modulate the real data entries, wherein each entry of the control data block has a phase angle that is a function of the phase angles of the corresponding entries of the real data blocks and the phase angle convoluting comprises subtracting from the phase angle of each real data entry all of the phase angles of all of the corresponding entries of all of the other real data blocks.

75. **(New)** An apparatus for encoding data for transmission over a telecommunications network, the apparatus comprising one or more processors configured to:

embed a control data block within a plurality of real data blocks;

modulate or transform or form the control data block through phase angle convoluting each real data entry of each real data block with phase angles of the corresponding entries of the other real data and embedding the convoluted real data entries into the control data block;

modulate or transform the plurality of real data blocks through modifying the plurality of real data blocks with at least some of the convoluted real data entries placed into the control data block; and

modulate or transform data in the plurality of real data blocks and the control data block with every sub-carrier that is used to modulate the real data entries, wherein each entry of the control data block has a phase angle that is a function of the phase angles of the corresponding entries of the real data blocks and the phase angle convoluting comprises subtracting from the phase angle of each real data entry all of the phase angles of all of the corresponding entries of all of the other real data blocks.